REMARKS

Part 2 comments on the above amendments, and the November 24, 2004 office action.

Part 1 -- Amendment to the Claims

1.-15. Canceled.

16-17. Canceled.

18. (Amended) A method ~~as defined in claim 17, further~~ of manufacturing multi-sheet corrugated material from first and second sheets which are adhered together, the first sheet having a wave shape defined by parallel-extending peaks and valleys, comprising:

feeding the first sheet and the second sheet simultaneously;

feeding the first sheet in a direction parallel to the peaks and valleys;

bringing the peaks of the first sheet into abutting contact with the second sheet at abutting contact portions of the sheets as the sheets are fed simultaneously;

heating at only the abutting contact portions of at least one of the first and second sheets;

heating the abutting contact portions extending along ~~a heating path extending~~ the abutting contact portions and parallel to the direction that the sheets are fed as the sheets are in motion from said simultaneous feeding;

pressing the first and second sheets together at the abutting contact portions while at least one of the first and second sheets is heated to thereby adhere the two sheets together; and

performing said heating and pressing of the abutting contact portions as the sheets are in motion from said simultaneous feeding.

19. Canceled.

20. Canceled.

21. (Amended) A method ~~as defined in claim 17~~ of manufacturing multi-sheet corrugated material from first and second sheets which are adhered together, the first sheet having a wave shape defined by parallel-extending peaks and valleys, ~~further~~ comprising:

feeding the first sheet and the second sheet simultaneously;

feeding the first sheet in a direction parallel to the peaks and valleys;

orienting a plurality of elongated core bars to extend parallel to one another and ~~in an orientation~~ to fit within the valleys of the first sheet while adjoining the peaks of the first sheet;

feeding the first sheet onto the plurality of core bars with each core bar located in a valley and adjoining a peak of the first sheet; ~~and~~

bringing the peaks of the first sheet into abutting contact with the second sheet at abutting contact portions of the sheets as the sheets are fed simultaneously;

heating at only the abutting contact portions of at least one of the first and second sheets;

transferring energy ~~substantially~~ only from each core bar to heat the abutting contact portions ~~to the adherence temperature~~ as the first sheet is in motion;

pressing the first and second sheets together at the abutting contact portions while at least one of the first and second sheets is heated to thereby adhere the two sheets together at the abutting contact portions; and

performing said heating and pressing of the abutting contact portions as the sheets are in motion from said simultaneous feeding.

22. (Previously presented) A method as defined in claim 21, further comprising:

transferring thermal energy from each bar to heat the abutting contact portions.

23. (Previously presented) A method as defined in claim 21, further comprising:

pressing the first and second sheets together at the abutting contact portions by pressing the abutting contact portions against the core bars.

24. (Previously presented) A method as defined in claim 23, further comprising:

pressing the abutting contact portions against the core bars with a press roll.

25. (Amended) A method as defined in claim ~~16~~ 21, further comprising:

forming the wave shape in the first sheet while the first sheet is being fed and prior to bringing the peaks of the first sheet into contact with the second sheet at the abutting contact portions.

26. (Amended) A method as defined in claim ~~16~~ 21, wherein the second sheet is planar.

27. (Amended) A method as defined in claim ~~16~~ 21, wherein the second sheet has a wave shape defined by parallel-extending peaks and valleys, and further comprising:

bringing the peaks of the first and second sheets into abutting contact at the abutting contact portions as the sheets are fed simultaneously.

28. (Amended) A device for manufacturing multi-sheet corrugated material from first and second sheets which are adhered together, the first sheet having a wave shape defined by parallel-extending peaks and valleys, comprising:

a feed mechanism which contacts the first and second sheets and moves the sheets ~~are~~ simultaneously in a longitudinal direction parallel to the peaks and valleys of the first sheet;

a guide member positioned to receive the sheets moving simultaneously in the longitudinal direction and to guide the longitudinally moving sheets into contact with one another with the peaks of the first sheet abutting the second sheet at abutting contact portions of the sheets as the sheets are simultaneously moved in the longitudinal direction;

a plurality of elongated core bars positioned stationarily to extend parallel to one another and parallel to the longitudinal direction, the plurality of

core bars stationarily positioned to fit within the valleys of the first sheet while the sheets contact one another at the abutting contact portions and as the sheets are simultaneously moved in the longitudinal direction over the elongated core bars;

each core bar including a local energy transfer element which transfers energy ~~substantially~~ at only the abutting contact portions of the sheets while the sheets are simultaneously moved in the longitudinal direction over the elongated core bars, the local energy transfer element transferring sufficient energy to the abutting contact portions to heat at least one of the sheets at the abutting contact portions ~~to an adherence temperature sufficient for adhering the heated sheet to the other sheet~~; and

a press device positioned at a location relative to each core bar and the local energy transfer element of that core bar to press the first and second sheets together at the abutting contact portions after the one sheet is heated ~~to~~, the press device pressing the sheets together at the abutting contact portions as the sheets are simultaneously moved in the longitudinal direction, the press~~ing~~ device adhering the two sheets together at the abutting contact portions.

29. (Amended) A device as defined in claim 28, wherein:

the energy transferred ~~substantially~~ only ~~by~~ from the core bars is sufficient ~~energy~~ to heat the abutting contact portions ~~to~~ as the ~~adherence temperature as the~~ first sheet is in motion.

30. (Amended) A device as defined in claim 28, wherein:

the guide member ~~is an extension of~~ comprises at least one of the one core bars.

31. (Amended) A device as defined in claim 28, wherein:

the local energy transfer element of each core bar ~~establishes a heating path extending~~ extends along each core bar; and

the local energy transfer element transfers energy to the abutting contact portions along ~~the~~ its length ~~of the heating path~~ as the sheets are in motion relative to each core bar.

32. (Amended) A device as defined in claim ~~32~~ 31, wherein:

each local energy transfer element transfers thermal energy to the abutting contact portions.

33. Canceled.

34. Canceled.

35. (Previously presented) A device as defined in claim 34, wherein:

the press device comprises a press roll which rolls in contact with one of the simultaneously moving sheets.

36. (Previously presented) A device as defined in claim 35, wherein:

the press roll is positioned relative to the core bars to press the first and second sheets together at the abutting contact portions between the press roll and the core bars.

37. (Amended) A device as defined in claim 28, further comprising:

~~an energy source located remotely from the core bars and operative to supply the energy transferred from the local energy contact element~~ a power supply providing energy to each local energy transfer element for transferring energy to the abutting contact portions of the sheets.

38. Canceled.

39. (Amended) A device as defined in claim 28, wherein:

the first sheet is ~~substantially~~ planar prior to the formation of the wave shape therein;

the feed mechanism contacts and moves the first planar sheet in the longitudinal direction; and further comprising:

a corrugation device receptive of the planar first sheet moved by the feed mechanism which is operative to form the wave shape in the first sheet prior to the first sheet encountering the guide member.

40. (Amended) A device as defined in claim 28, wherein the second sheet is planar~~.~~, and said device manufactures the corrugated material from the first and second sheets.

41. (Previously presented) A device as defined in claim 28, wherein the second sheet has a wave shape defined by parallel-extending peaks and valleys, and wherein:

the guide member is positioned to guide the longitudinally moving sheets into contact with one another with the peaks of the first and second sheet abutting one another at the abutting contact portions of the sheets as the sheets are simultaneously moved in the longitudinal direction; and

the plurality of elongated core bars are positioned stationarily to fit within the valleys of the first and second sheets to heat the abutting contact portions as the sheets are simultaneously moved in the longitudinal direction over the elongated core bars.

42. (New) A method as defined in claim 18, further comprising:

forming the wave shape in the first sheet while the first sheet is being fed and prior to bringing the peaks of the first sheet into contact with the second sheet at the abutting contact portions.

43. (New) A method as defined in claim 18, wherein the second sheet is planar.

44. (New) A method as defined in claim 18, wherein the second sheet has a wave shape defined by parallel-extending peaks and valleys, and further comprising:

bringing the peaks of the first and second sheets into abutting contact at the abutting contact portions as the sheets are fed simultaneously.

Part 3 -- Remarks

This Amendment and Response is responsive to the final office action mailed November 24, 2004. In that office action, (1) claim 40 was objected to under 37 CFR 1.75(c) as having improper form for failing to further limit a previous claim; (2) claims 16-41 were rejected under 35 USC 112, first paragraph as failing to comply with the written description requirement, with specific rejections directed to claims 16, 18, 19, 20, 21, 28, 29, 30, 31, 33, 34, 37, 38 and 39; (3) claim 37 was rejected under 35 USC 112, first paragraph, as not being enabled by the specification; (4) claims 16-41 were rejected under 35 USC 112, second paragraph, as being indefinite, with specific rejections directed to claims 16, 20, 21, 28, 29, 33, and 39; (5) claims 16-20, 25 and 26 were rejected under 35 USC 103(a) as obvious from Suzuki (3,666,590) in view of Schwartz (4,267,223); (6) claim 27 was rejected under 35 USC 103(a) as obvious from Suzuki in view of Schwartz and further in view of Scotland (2,454,719); and (7) claims 21-24 and 28-41 were noted as allowable if rewritten to overcome the rejections under 35 USC 112, second paragraph.

Reconsideration of these objections and rejections is respectfully requested in view of the above amendments and the following comments. Claims 18, 21-32, 35-37 and 39-44 are pending.

Allowable Subject Matter

As discussed below, the applicants have adopted the Examiner's statement that claims 21 and 28 contain allowable subject matter. In addition, the Examiner's other suggestions for amendments to certain dependent claims have been adopted. Claims 16, 17, 19, 20, 33, 34 and 38 have been canceled. Rejected claims 25-27 have been amended to depend on allowable claim 21. Accordingly, these aspects of the response fall within the scope of 37 CFR 1.116, which permits amendments to cancel claims and to comply with requirements of form. Pending claim 18 is the only independent claim which has not been noted as allowable, and reconsideration of its rejection is respectfully requested for the reasons discussed below in the next to the last section of

these Remarks. New claims 42-44 are duplicates of claims 25-27, but dependent on amended claim 18.

Claim 21 has been amended into independent form by incorporating subject matter from previous claims 16 and 17. In addition, for the reasons set forth below, it is believed that amended claim 21 is free of the rejections under 35 USC 112, first and second paragraphs, and therefore should be allowable as noted by the Examiner.

Claims 22-24 have been noted as allowable and depend on amended claim 21. Claims 25-27 have been amended to depend on amended claim 21. For the reasons set forth below, it is believed that claims 22-27 are free of the rejections under 35 USC 112, first and second paragraphs. Therefore, claims 22-27 should be allowable in conjunction with amended claim 21.

Claims 28-32, 35-37 and 39-41 are believed free of the rejections under 35 USC 112, first and second paragraphs, and claim 40 is believed free of the objection under 37 CFR 1.75(c), for the reasons explained below. Accordingly, it is believed that claims 28-32, 35-37 and 39-41 are allowable as noted by the Examiner.

Section 112 Rejections

1. Written Description

a. Claim 16 has been cancelled, but the suggestion to eliminate "substantially" has been followed in amending pending claims 18 and 21, which were formed by including subject matter from claim 16.

b. Claim 16 previously referred to "adherence temperature" which has now been eliminated in the amendments of the pending claims 18 and 21.

c. Claim 18 has been amended to incorporate the suggested language.

d. Claim 19 has been canceled.

e. Claim 20 has been canceled.

f. Claim 21 has been amended, as suggested.

g. Claim 21 previously referred to "adherence temperature" which has now been eliminated from the claim, as suggested.

h. Claim 28 has been amended to eliminate "substantially," and to incorporate the language suggested.

i. Claim 28 has been amended as suggested to eliminate reference to "adherence temperature."

j. Claim 29 has been amended as suggested to eliminate reference to "substantially."

k. Claim 29 has been amended as suggested to eliminate reference to "adherence temperature."

l. Claim 30 has been amended as suggested.

m. Claim 31 has been amended as suggested.

n. Claim 33 has been canceled.

o. Claim 34 has been canceled.

p. Claim 37 has been amended as suggested.

q. Claim 38 has been canceled.

r. Claim 39 has been amended as suggested.

Although the Examiner's suggestions for claim amendments have been accepted and made, it is believed that the original disclosure contains an adequate written description of the subject matter previously claimed. It is noted that the written description requirement may be complied with by express, implicit or inherent description in the original specification or claims. Furthermore, there is no requirement that the original specification and claims describe the claim limitations in precisely the same language. See MPEP 2163.

2. Enablement

In regard to the enablement rejection of claim 37, the Examiner's suggestion for amending claim 37 has been adopted. It is understood that this claim amendment satisfies the Examiner's concern regarding enablement.

3. Indefiniteness

Claims 20 and 33 have been canceled, so the indefiniteness rejections applied to those claims should no longer be applicable.

Claims 18, 21, 28, 29, and 39 have been amended as suggested by the Examiner. (Claims 18 and 21 incorporate suggestions made with respect to claim 16, now canceled.) Some of the alleged indefiniteness associated with these claims related to the use of "substantially" to describe certain characteristics or limitations in those claims. Although the word "substantially" has been eliminated by the present amendments, it is not believed that such amendments materially change the scope of the claims or the effect of the law with respect to claims construction, in that exacting precision in description is not believed to be required. This was the original intent in using "substantially" in the previous form of these claims.

Dependent Form Objection

Claim 40 has been amended to make it clear that the device recited in that claim is operable with respect to a second planar sheet. That characteristic constitutes a structural limitation, and as such, claim 40 limits claim 28 which does not specifically describe a planar characteristic of the second sheet with which the device operates. Accordingly, it is believed the claim 40 complies with 37 CFR 1.75(c).

Obviousness Rejection

Claim 18 is the only pending independent claim which has not been noted as allowable. Claim 18 was rejected as obvious from Suzuki in view of Schwartz. Reconsideration of this rejection is respectfully requested.

Claim 18 is a combination of previous claims 16, 17 and 18. The rejection of claim 16 asserts that it would be obvious to combine Suzuki, who describes forming corrugations extending parallel to the direction of movement of the sheets, with Schwartz, who describes forming corrugations extending perpendicular to the direction of sheet movement. The rejection recognizes the parallel-perpendicular corrugation dichotomy in the sentence bridging pages 11 and 12 of the office action, but dismisses

the dichotomy as one that a person of ordinary skill in the art would obviously accommodate since no unexpected results would be obtained. The rejection of claim 17 appears to be based on this logic as well. The rejection of previous claim 18 is that "the abutting contact portions are considered to be heated along a path extending parallel to the direction that the sheets are fed as the sheets are in motion from said simultaneous feeding." Office action, page 12. It is respectfully submitted that these assertions can not support a valid obviousness rejection of amended claim 18.

Amended claim 18 requires heating "at only the abutting contact portions," and that the heating "extends along the abutting contact portions and parallel to the direction that the sheets are fed." Suzuki, as recognized in the office action, heats across the entire belt which supports the entire sheet used in forming the corrugated material. Accordingly, Suzuki does not heat at only the abutting contact portions. Schwartz discloses three types of heating, but none of them involve heating only at the abutting contact portions which extend parallel to the direction of sheet movement. The corrugations formed by Schwartz extend perpendicular to the direction of sheet movement. These corrugations are sealed at a first heat sealing station 14 by contacting heating elements 13 (which extend perpendicularly to the direction of sheet movement) with the perpendicular corrugations. See Fig. 1 and column 7, lines 42-46. Thus, Schwartz's first type of heating is perpendicular to the direction of sheet movement and is not parallel to the direction of sheet movement as claimed. Schwartz's second and third types of heating occur at a second heat sealing station 16, as discussed generally at column 6, lines 17-62. The second type of heating at the second station involves two heated rolls 38 which contact the entire surface of the sheet, and therefore do not heat only at the abutting contact portions as claimed. The third type of heating also occurs at the second station and involves the rolls shown in Figs. 7 and 8, but uses heated projections 70 and 70'. The heat projections cause heat seals in the areas 77 and 77,' "which are transverse to rows of the corrugations 76 of core 23 as shown in Fig. 10." Column 9, lines 45-48. As shown in Fig. 10, the heat

seals 77 and 77' are parallel to the direction of sheet movement, but those heat seals do not extend along the abutting contact portions because the abutting contact portions extend perpendicular to the direction of sheet movement. Thus, Schwartz's second and third types of heating also fail to disclose heating only along the abutting contact portions which extend parallel to the direction of sheet movement.

Because neither Suzuki nor Schwartz disclose the concept of heating only at the abutting contact portions which extend parallel to the direction of sheet movement, as recited in claim 18, combining Suzuki and Schwartz fails to meet the subject matter of claim 18 and therefore fails to render claim 18 obvious.

Moreover, there is no teaching of how to combine Suzuki and Schwartz, as would be necessary for a valid obviousness rejection of claim 18. Suzuki forms the corrugations in a direction parallel to the sheet movement. Schwartz forms the corrugations in a direction perpendicular to the sheet movement. Neither reference discloses how to combine it with the other so that heating only at the abutting contact portions extends along the abutting contact portions and parallel to the direction of sheet movement while pressing the sheets together as the sheets are fed in simultaneous motion. Achieving all of the specifically claimed functionality of claim 18 is not obvious, because the problems of doing so while simultaneously moving the sheets are not obviously overcome. This recognition is apparent by the failure of the cited prior art to disclose the concept now recited in pending claim 18.

New claims 42-44 are duplicates of claims 25-27, but depend on claim 18. New claims 42-44 should be patentable in conjunction with claim 18. No new search of claims 42-44 should be required because claims 25-27 have been searched previously.

For these and other reasons, it is believed that claims 18 and 42-44 should be allowable. It is respectfully requested that the obviousness rejection of claim 18 be withdrawn.

Request for Telephone Interview

If claims 18 and 42-44 are not allowable, the Examiner is requested to contact the undersigned by telephone to discuss the reasons for the continued rejection of these claims. Such an interview will provide the undersigned with an opportunity to take appropriate action as soon as possible, in view of the final rejection.

It is believed that all of the other the claims now pending in the application are allowable. If this is not the case, the telephone conference with the Examiner would also be useful in resolving further issues with respect to the other claims.

Respectfully submitted,

Date: 2/22/05 By: _____

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